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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/594,479	06/14/2000	Hayashi Otsuki	192520US2	7957

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EXAMINER

PUNNOOSE, ROY M

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 04/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/594,479

Applicant(s)

OTSUKI ET AL.

Examiner

Roy M. Punnoose

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-17 is/are allowed.
- 6) ☒ Claim(s) 1-8 and 18-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Response to Amendment

1. Receipt of amendment letter on February 04, 2002 is acknowledged. However, the amendment to the claims has necessitated the Examiner to make this office action final.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claim 1, and 18- 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Merely providing the components for making an apparatus does not make or create an apparatus to perform a useful function. The claim must describe how the components are structured together to perform a useful function. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claim 1, and 18-20 are rejected under 35 U.S.C. 102(a) as being anticipated by Tsukazaki et al (US_5,837,094).

With regard to claim 1, Tsukazaki et al (Tsukazaki hereinafter) discloses a particle measuring system comprising a laser irradiator 15a for irradiating a portion of an exhaust gas, a

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detector 15b for detecting particles, and a particle monitoring/measuring device 15 for measuring the number of particles in the exhaust gas (see col.8, lines 10-24) where gas is exhausted from process chamber by vacuum (see col.8, lines 28-32) wherein the processing chamber 4 has a wall and the exhaust pipe extends horizontally and vertically (see figure 3).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukazaki et al. (US_5,837,094) in view of what is common knowledge in the art.

With regard to claims 2-8, Tsukazaki teaches all the limitations as disclosed above except that Tsukazaki does not explicitly disclose specific alignment, positioning, and orientation of the laser irradiator and detector in an exhaust pipe for measuring the number of particles in the exhaust gas in a semiconductor manufacturing apparatus.

Arranging laser irradiator and detector in any specific alignment, position, and/or orientation for measuring the number of particles in a gas is common knowledge in the art.

In view of, what is common knowledge in the art, it would have been obvious to one of ordinary skill in the art at the time the invention was made to align, position, and/or orient a laser irradiator and detector in an exhaust pipe for measuring the number of particles in the exhaust gas in a semiconductor manufacturing apparatus due to the fact that such orientation, alignment and/or positioning of the laser irradiator and detector would provide an alternate way for

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measuring the number of particles in the exhaust gas in a semiconductor manufacturing apparatus. Accordingly, such a modification would have constituted an alternative means/obvious engineering expedience for one of ordinary skill in the art.

Allowable Subject Matter

8. Claims 9-17 are allowed.

9. Claims 9 is allowed because the prior art of record, taken alone or in combination, fails to disclose or render obvious a particle measuring method comprising a numerical simulation for expressing the trajectory of an exhaust gas that includes particles flowing through an exhaust pipe and confirming an optimum position for measuring particles, in combination with the rest of the limitations of the claim.

10. Claims 10-11 are allowed because their limitations are dependent on limitations of independent claim 9.

11. Claims 12 is allowed because the prior art of record, taken alone or in combination, fails to disclose or render obvious a particle measuring system comprising a laser beam irradiator installed on a sensor manifold and having a driving mechanism movable in a radial direction of the exhaust pipe, in combination with the rest of the limitations of the claim.

12. Claims 13-14 are allowed because their limitations are dependent on limitations of independent claim 12.

13. Claims 15 is allowed because the prior art of record, taken alone or in combination, fails to disclose or render obvious a particle measuring method comprising the steps of selecting an area in which the density of particles is high by carrying out a simulation based on information

on constructional members including the processing chamber and other members disposed inside the processing chamber, in combination with the rest of the limitations of the claim.

14. Claims 16 is allowed because the prior art of record, taken alone or in combination, fails to disclose or render obvious a particle measuring method comprising the steps of determining an optimum position of installing a sensor by simulation, and inputting the installation position information to a position controller of a laser position adjusting unit, in combination with the rest of the limitations of the claim.

15. Claim 17 is allowed because their limitations are dependent on limitations of independent claim 16.

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Examiner Roy M. Punnoose** whose telephone number is 703-306-9145. The examiner can normally be reached on 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the applicant can reach his ***Supervisory Patent Examiner, Frank G. Font***, at (703) 308-4881.

The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a **general nature** or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-0530.

Roy M. Punnoose
Patent Examiner
Art Unit 2877
April 21, 2002





Mr. Frank G. Font
Supervisory Patent Examiner